Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A device for measuring blood flow in an organ using an injected indicator comprising:

a radiation source for emitting near infrared radiation into tissue of the organ at a first location;

a sensor for detecting a proportion of the emitted near infrared radiation that exits from the organ at a second location; and

an evaluation unit that detects the proportion of the emitted near infrared radiation that exits from tissue of the organ as an input signal comprising a pulsatile component and a non-pulsatile component, said evaluation unit being programmed to perform the following evaluation steps:

(a) dividing up said input signal into said pulsatile component and said non-pulsatile component;

(b) determination of injected indicator concentration with reference to the organ tissue from said non-pulsatile component of the input signal;

(c) iterative determination, from said non-pulsatile component, of an inflow function i(t) that characterizes blood flow through the organ by incrementally varying a mean transit time mtt until a stop criterion is reached;

(d) determination of injected indicator concentration with reference to blood volume in the organ from the pulsatile component of the input signal and the iteratively determined inflow function i(t);

(e) calculation of blood volume in the organ as a quotient of the injected indicator concentration with reference to the organ tissue and the injected indicator concentration with reference to the blood volume in the organ; and

(f) calculation of the blood flow in the organ as a quotient of the blood volume in the organ and the mean transit time mtt when the stop criterion has been reached.

Claim 2 (currently amended): A device for measuring blood flow in an organ using an injected indicator comprising:

a radiation source for emitting near infrared radiation into tissue of the organ at a first location;

a sensor for detecting a proportion of the emitted near infrared radiation that exits from the organ at a second location; and

an evaluation unit that detects the proportion of the emitted near infrared radiation that exits from tissue of the organ as an input signal comprising a pulsatile component and a non-pulsatile component, said evaluation unit being programmed to perform the following evaluation steps:

(a) dividing up said input signal into said pulsatile component and said non-pulsatile component;

(b) determination of injected indicator concentration with reference to the organ tissue from said non-pulsatile component of the input signal;

(c) iterative determination, from said non-pulsatile component, of an inflow function i(t) that characterizes blood flow through the organ by incrementally varying a mean transit time mtt until a stop criterion is reached;

(d) determination of injected indicator concentration with reference to blood volume in the organ from the pulsatile component of the input signal and the iteratively determined inflow function i(t);

(e) calculation of blood volume in the organ as a quotient of the injected indicator concentration with reference to the organ tissue and the injected indicator concentration with reference to the blood volume in the organ;

(f) calculation of the blood flow in the organ as a quotient of the blood volume in the organ and the mean transit time mtt when the stop criterion has been reached; and

(g) scaling of the inflow function i(t) by means of values determined from the pulsatile component of the input signal.

Claim 3 (cancelled)

Claim 4 (original): The device according to claim 1, wherein each iteration step in the iterative determination of the inflow function i(t) comprises a step-by-step calculation by approximation of the inflow function i(t) according to the equation

$$i(t) = d/dt\ (C_{tissue}(t)) + o(t - t_k)$$

and of an outflow function o(t) by means of a convolution integral

$$o(t) = i(t) * g(t)$$

wherein $d/dt\ (C_{tissue}(t))$ is a term that describes a change in the injected indicator concentration with reference to the organ tissue, a value of the outflow function o(t) at a time $t - t_k$ is to be inserted for $o(t - t_k)$, and g(t) is a characteristic

transport function in which the mean transit time mtt is included.

Claim 5 (original): The device according to claim 1, wherein the stop criterion for the iterative determination of the inflow function i(t) includes that a minimum of the inflow function i(t) determined by means of iteration is greater than a threshold value.

Claim 6 (original): The device according to claim 5, wherein the threshold value is 0.

Claim 7 (original): The device according to claim 4, wherein the stop criterion for the iterative determination of the inflow function i(t) includes that the inflow function i(t) can be represented as a sum of a finite number of functions that are similar in form to the transport function g(t).

Claim 8 (original): The device according to claim 1, wherein an absorption coefficient of the indicator that decreases with an increasing indicator concentration is stated for the

determination of the injected indicator concentration with reference to the blood volume in the organ.

Claim 9 (original): The device according to claim 1, further comprising a non-invasive measurer of blood flow in the organ including means for radiating near infrared radiation in through the skin at the first location and means for capturing the exiting proportion of the emitted near infrared radiation through the skin at the second location.

Claim 10 (original): The device according to claim 9, further comprising means for a local reduction of skin perfusion at the first location and the second location by means of applying a locally increased contact pressure.

Claim 11 (original): The device according to claim 1, wherein the evaluation unit is programmed to take into consideration that the organ is a patient's brain, the blood flow is cerebral blood flow CBF, and the blood volume is cerebral blood volume CBV.

Claim 12 (original): The device according to claim 1, wherein the indicator is indocyaningreen.

Claim 13 (currently amended): A method for measuring blood flow in an organ using an injected indicator comprising the steps of:

emitting near infrared radiation into tissue of the organ at a first location;

detecting a proportion of the emitted near infrared radiation that exits from the organ at a second location as an input signal having a pulsatile component and a non pulsatile component;

dividing up said input signal into said pulsatile component and said non-pulsatile component;

determination of injected indicator concentration with reference to the organ tissue from the non-pulsatile component of the input signal;

iterative determination, from said non-pulsatile component, of an inflow function i(t) that characterizes blood flow through the organ by incrementally varying a mean transit time mtt until a stop criterion is reached;

determination of injected indicator concentration with reference to blood volume in the organ from the pulsatile component of the input signal and the iteratively determined inflow function i(t);

calculation of blood volume in the organ as a quotient of the injected indicator concentration with reference to the organ tissue and the injected indicator concentration with reference to the blood volume in the organ; and

calculation of the blood flow in the organ as a quotient of the blood volume in the organ and the mean transit time mtt when the stop criterion has been reached.

Claim 14 (currently amended): A method for measuring blood flow in an organ using an injected indicator comprising the steps

of:

emitting near infrared radiation into tissue of the organ at a first location;

detecting a proportion of the emitted near infrared radiation that exits from the organ at a second location as an input signal having a pulsatile component and a non pulsatile component;

dividing up said input signal into said pulsatile component and said non-pulsatile component;

determination of injected indicator concentration with reference to the organ tissue from the non-pulsatile component of the input signal;

iterative determination, from said non-pulsatile component, of an inflow function i(t) that characterizes blood flow through the organ by incrementally varying a mean transit time mtt until a stop criterion is reached;

determination of injected indicator concentration with reference to blood volume in the organ from the pulsatile component of the input signal and the iteratively determined inflow function i(t);

calculation of blood volume in the organ as a quotient of the injected indicator concentration with reference to the organ tissue and the injected indicator concentration with reference to the blood volume in the organ;

calculation of the blood flow in the organ as a quotient of the blood volume in the organ and the mean transit time mtt when the stop criterion has been reached; and

scaling the inflow function i(t) by means of values determined from the pulsatile component of the input signal.

Claim 15 (original): The method according to claim 14, wherein the determination of the concentration of injected indicator with reference to the blood volume in the organ comprises back-extrapolation of the scaled inflow function i(t)

to a time of injection of the indicator.

Claim 16 (original): The method according to claim 13, wherein each iteration step in the iterative determination of the inflow function i(t) comprises a step-by-step calculation by approximation of the inflow function i(t) according to the equation

$$i(t) = d/dt\ (C_{tissue}(t)) + o(t - t_k)$$

and of an outflow function o(t) by means of a convolution integral

$$o(t) = i(t) * g(t)$$

wherein $d/dt\ (C_{tissue}(t))$ is a term that describes a change in the injected indicator concentration with reference to the organ tissue, a value of the outflow function o(t) at a time $t - t_k$ is to be inserted for $o(t - t_k)$, and g(t) is a characteristic transport function in which the mean transit time mtt is included.

Claim 17 (original): The method according to claim 13, wherein the stop criterion for the iterative determination of the inflow function i(t) includes that a minimum of the inflow function i(t) determined by means of iteration is greater than a threshold value.

Claim 18 (original): The method according to claim 17, wherein the threshold value is 0.

Claim 19 (original): The method according to claim 16, wherein the stop criterion for the iterative determination of the inflow function i(t) includes that the inflow function i(t) can be represented as a sum of a finite number of functions that are similar in form to the transport function g(t).

Claim 20 (original): The method according to claim 13, wherein an absorption coefficient of the indicator that decreases with an increasing indicator concentration is stated for the determination of the injected indicator concentration with reference to the blood volume in the organ.

Claim 21 (original): The method according to claim 13, wherein skin perfusion is reduced at the first location and the second location by means of applying a locally increased contact pressure.

Claim 22 (original): The method according to claim 13, wherein the organ is a patient's brain, the blood flow is cerebral blood flow CBF, and the blood volume is cerebral blood volume CBV.

Claim 23 (original): The method according to claim 13, wherein the indicator is indocyaningreen.

Claim 24 (new): A device for measuring blood flow in an organ using an injected indicator comprising:

a radiation source for emitting near infrared radiation into tissue of the organ at a first location;

a sensor for detecting a proportion of the emitted near infrared radiation that exits from the organ at a second

location; and

an evaluation unit that detects the proportion of the emitted near infrared radiation that exits from tissue of the organ as an input signal comprising a pulsatile component and a non-pulsatile component, said evaluation unit being programmed to perform the following evaluation steps:

(a) dividing up said input signal into said pulsatile component and said non-pulsatile component;

(b) determination of injected indicator concentration with reference to the organ tissue from said non-pulsatile component of the input signal;

(c) iterative determination, from said non-pulsatile component, of an inflow function i(t) that characterizes blood flow through the organ by incrementally varying a mean transit time mtt until a stop criterion is reached;

(d) determination of injected indicator concentration with

reference to blood volume in the organ from the pulsatile component of the input signal and the iteratively determined inflow function i(t);

(e) scaling of the inflow function i(t) by means of values determined from the pulsatile component of the input signal;

(f) back-extrapolation of the scaled inflow function i(t) to a time of injection of the indicator;

(g) calculation of blood volume in the organ as a quotient of the injected indicator concentration with reference to the organ tissue and the injected indicator concentration with reference to the blood volume in the organ; and

(h) calculation of the blood flow in the organ as a quotient of the blood volume in the organ and the mean transit time mtt when the stop criterion has been reached.